DOCUMENT RESUME

ED 206 242 HE 014 315

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TITLE A Survey of Medical Technology Graduates of Illinois State University: 1972-1979.
PUB DATE Jun 81
NOTE 17p.; Paper presented at the Annual Meeting of the American Society for Medical Technology (June 1981).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Age; *Allied Health Occupations Education; Curriculum; Educational Attitudes; *Education Work Relationship; *Employment Patterns; Followup Studies; Graduate Surveys; Higher Education; *Medical Technologists; Sex Differences; State Universities; *Student Characteristics
IDENTIFIERS *Illinois State University

ABSTRACT

A sample of 170 graduates of the medical technology program at Illinois State University was surveyed to investigate their educational background and their employment history. A total of 228 questionnaires were mailed to all graduates from 1972 through 1979. The demographic data of the ratio of females to males in the field of medical technology were not significantly different from that reported in other studies. However, a majority of the ages, which ranged between 23 and 30 years, were considerably higher when compared to the ages of medical technologists reported in a national survey. Whereas over 57 percent of the respondents indicated that they should have had more professional courses before entering internship, over 39 percent indicated that if taking more courses required spending additional time at the university, the present curriculum should remain as it is. Over 90 percent of the respondents were employed, and over 62 percent indicated they would not choose a different line of work if they could start over. (Author/MSE)

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A SURVEY OF MEDICAL TECHNOLOGY GRADUATES OF ILLINOIS STATE UNIVERSITY: 1972-1979

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A SURVEY OF MEDICAL TECHNOLOGY GRADUATES OF ILLINOIS STATE UNIVERSITY: 1972-1979

INTRODUCTION - Groundwork for the development of a medical technology program at Illinois State University was begun in July, 1964, when the Illinois Board of Higher Education adopted the first Master Plan for the State.[1] The plan recommended that a state-wide survey be made of the need for additional facilities and educational programs in several health sciences, including medical technology. The Illinois General Assembly implemented the recommendations of the plan, when it enacted House Bill 1190. The plan became commonly known as the Campbell Tucker report, and it indicated that Illinois State University should become heavily involved in the formation of health programs.

This study seeks to determine the relationship, if any, between the graduates of Illinois State University Medical Technology Program, and their employment patterns. A second phase of the study is to determine the need, if any, for modifying and/or expanding the curriculum of the medical technology program at Illinois State University. The research questions generated by the study are:

1. What do the demographic data on Illinois State University Medical Technology Program graduates indicate?
2. Do the graduates of Illinois State University Medical Technology Program feel that there is significant need to modify and/or to expand the medical technology program curricula?
3. Where do the graduates of Illinois State University Medical Technology Program work?

4. What is the length of time the graduates of Illinois State University Medical Technology Program remain in their job?
5. Do the graduates of Illinois State University Medical Technology Program feel that there is adequate opportunity for professional growth in their present employment.
6. Do the graduates of Illinois State University Medical Technology Program feel that they have opportunities for making decisions relative to their work in their present employment?
7. Are most graduates of Illinois State University Medical Technology Program currently employed?

MATERIALS AND METHODS- The following procedure was used to obtain data concerning the follow-up of medical technology graduates of Illinois State University: (1) a review of the literature was made concerning follow-up studies of medical technology graduates in doctoral dissertations, master's thesis, books, periodicals, and journals; (2) selected relevant articles were reviewed, for applicability to this study; (3) a questionnaire to gather data for the study was developed. It is noted that the advantages of the mail questionnaire are: (a) it gathers data from a relatively large number of cases at a particular time, and (b) it is most efficient and cost effective means of conducting a study. The fourth step used in the procedure was that the questionnaire was pre-tested by selected professors of medical technology at Illinois State University; (5) the instrument was revised incorporating the suggestions and recommendations of the professors; (6) the questionnaire was mailed to the participants; (7) a follow-up letter and telephone calls were addressed

to participants who did not respond to the questionnaire; and (8) data were recorded, summarized, and analyzed.

The subjects used in this study were graduates of the medical technology Program at Illinois State University. The population is composed of 228 graduates which represent all graduates of classes from 1972 through 1979.

The population is a finite population which has been defined as "a whole number of a people", or one in which..."all of the subjects fit a given description."

Table I shows the number and classes of the population in this study.

TABLE 1

MEDICAL TECHNOLOGY GRADUATES BY YEARS AT ILLINOIS STATE UNIVERSITY

Number of Graduates	Years of Graduation
20	1972
20	1973
21	1974
24	1975
28	1976
38	1977
39	1978
38	1979
Total 228	8

Two hundred twenty-eight questionnaires were mailed to the graduates accordingly; twenty to the class of 1972, twenty to the class of 1973, twenty-one to the class of 1974, twenty-four to the class of

1975, twenty-eight to the class of 1976, thirty-eight to the class of 1977, thirty-nine to the class of 1978, and thirty-eight to the class of 1979. Participation in the study was voluntary and all questionnaires were completed anonymously.

Data obtained from the survey were summarized by utilizing the keypunch method on Standard International Business Machine data cards for integration with the National Semi-Conductor (ITEL) AS5/7031 computer systems at Illinois State University. The program chosen for processing the data was the Statewide Package for Social Sciences. The analysis of the data consisted of calculating the raw scores to obtain results which are reported mainly in terms of percent. Appropriate tables and graphs were used to provide statistical presentations of the data.

RESULTS - Of the 228 questionnaires mailed to the graduates of Illinois State University Medical Technology Program 170, or 74.6 percent, were returned. Five, or 25 percent, were returned by the class of 1972, twelve, or 60 percent, by the class of 1973; twelve, or 60 percent, by the class of 1974; twenty-three, or 96 percent, by the class of 1975; twenty-seven, or 96 percent, by the class of 1976; twenty-six, or 68 percent, by the class of 1977; twenty eight or 72 percent, by the class of 1978; and twenty-four, or 63 percent, by the class of 1979. The percentage of questionnaires returned is illustrated by the bar graph in Figure 1.

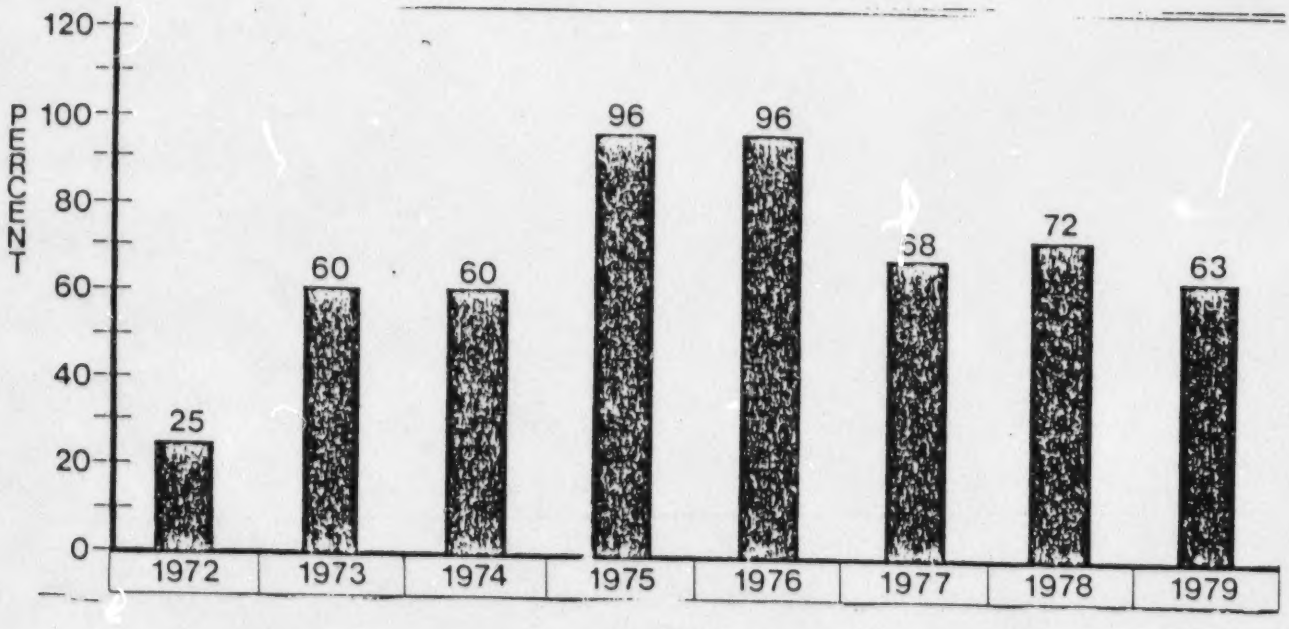

Fig. 1. Return of questionnaires by classes of Illinois State University Medical Technology graduates.

One hundred and forty-six, or 85.9 percent, of the respondents were female, and twenty-four, or 14.1 percent, were male. The ages of the respondents ranged from 19 to 50 years of age. These are summarized in Table II.

TABLE II

AGES OF RESPONDENTS OF ILLINOIS STATE UNIVERSITY MEDICAL TECHNOLOGY GRADUATES

Illinois State University Medical Technology Graduates	Ages in Years	19-22	23-30	31-40	41-50	Over 50
	Number of Respondents	7	165	7	1	0
	Percent of Respondents	4.1	91.2	4.1	0.6	0

The ethnic backgrounds of the respondents were: 165, or 97 percent, White/Caucasian; two, or 1.2 percent, Black/Afro-American; and three, or 1.8 percent, Oriental. Ninety-nine, or 58.2 percent, were married; sixty-six, or 38.8 percent, were single/never married; and five, or 2.9 percent, were single/divorced or separated.

One hundred and sixty-four, or 96.5 percent of the respondents were certified medical technologists; one, or 0.6 percent, had a categorical certification with medical technologists certification; one, or 0.6 percent, had specialist certification without medical technologists certification; one, or 0.6 percent, had a specialist certification in addition to the medical technologist certification; and one, or 0.6 percent, had other (certification), two, or 1.2 percent, of the graduates were not certified. One hundred and twenty-four, or 72.9 percent, had baccalaureate degrees; forty-four, or 25.9 percent, had studied beyond the baccalaureate degree; one, or 0.6 percent, had a masters degree, and one, or 0.6 percent, reported other.

More than 57 percent of the 170 respondents "strongly agreed" that the medical technology curriculum prepared them adequately to enter their internships; however, more than 62 percent "agreed" that their curricular experiences were equal to the preparations of interns from other institutions who were in their internship classes. More than 29 percent of the 170 respondents "agreed" that their curricular experiences prepared them equally to students from other institutions. Less than 6 percent of the respondents "disagreed" that their medical technology curriculum prepared them adequately for their internships, and less than 7 percent "agreed" that their curricular experiences were not equal to their classmates from other institutions.

More than 22 percent of the 169 respondents "strongly agreed" that they should have had more professional courses before entering their internships, and over 35 percent "agreed" that they should have had more professional courses. Conversely, over 21 percent of the 169 respondents "disagreed" that they should have had more professional courses before starting their internships, while less than 4 percent "strongly disagreed" on their need for more professional courses.

Over 39 percent of 162 respondents "agreed" and over 8 percent "strongly agreed" that if taking more professional courses before entering internship required spending additional time at the university, the present curriculum should remain as it is.

Tabulations of the responses of the graduates concerning their employment status revealed that: 136, or 80.0 percent, were employed full time; twenty, or 11.8 percent, were employed part-time; and fourteen

or 8.2 percent, were not currently employed. Of the 8.2 percent who were not currently employed, none cited "lay off" and "limited opportunities for employment" as a reason for their employment status.

Eighty-three, or 48.8 percent, of the respondents had gotten their first job by remaining at the hospital where they had interned; fifty-three, or 31.2 percent, by contacting employers; twenty-one, or 12.4 percent, by responding to a job advertisement; eight, or 4.7 percent, through someone at the hospital where internship was served; and five, or 2.9 percent, listed other.

There were 154 respondents who listed their job assignments. These are shown in Table III.

TABLE III

JOBS HELD BY THE MEDICAL TECHNOLOGY GRADUATES OF ILLINOIS STATE UNIVERSITY

Job Assignment	Respondents	
	Number	Percent
Staff Technologist	104	67.6
Laboratory Science Educator	1	0.6
Research Technologists	3	1.9
Laboratory Administrator or Supervisor	7	4.5
Department Supervisor	18	11.8
Educational Coordinator	2	1.3
Senior Technologists	10	6.5
Laboratory Technician	6	3.9
Other	3	1.9
Totals	154	100.0

One hundred and sixty-one, or 94.7 percent, of the 170 graduates reported their areas of interest in medical technology specialities. These are shown in Figure 2.

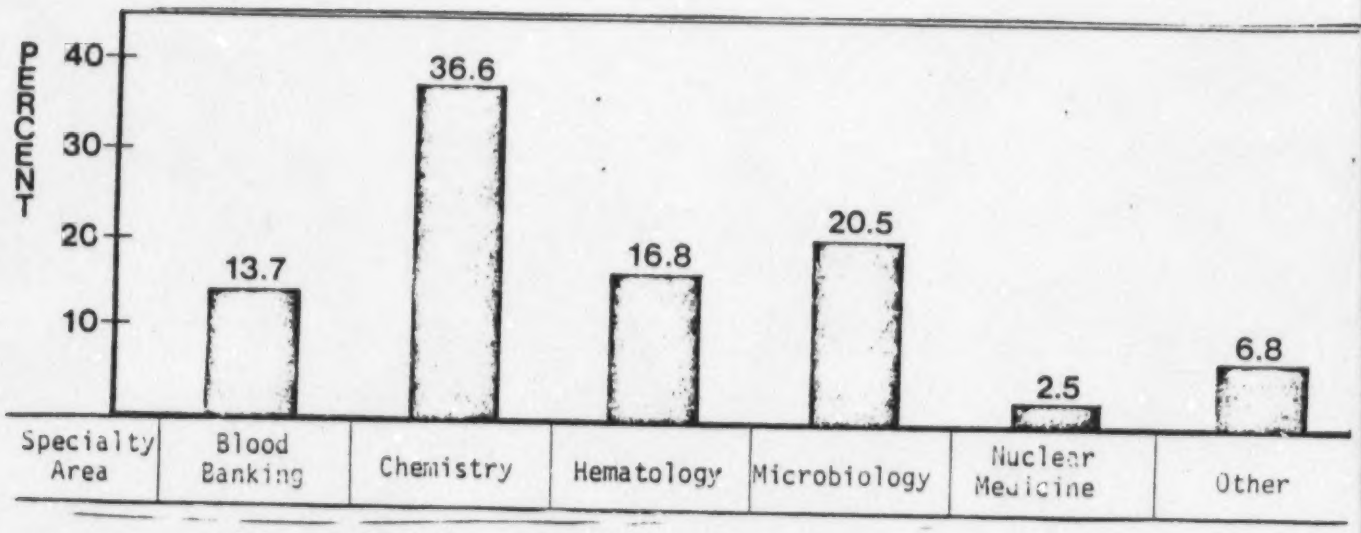

Fig. 2. Specialty, or primary area of interest, of Illinois State University Medical Technology graduates.

Of the 170 respondents, seventy, or 41 percent, had changed jobs. The reasons given by the graduates for leaving their first jobs were as follow: one, 1.43 percent, left because of pregnancy; three, 4.29 percent, left to rear their children; four, 5.71 percent, left to return to school; fifteen, 21.43 percent, left because of dissatisfaction with the job; twenty-eight, 40 percent, left because a better job was available; and nineteen, 27.14 percent, listed other reasons for leaving.

Only 162 of the graduates responded to the question regarding the length of time spent in their present jobs. Eighty-three, or 51.2 percent, had spent less than two years in their present jobs; seventy, or 43.2 percent, had spent between two and five years; and nine, or 5.6 percent, had spent between six and ten years.

Of the 145, or 86.5 percent, of the respondents who noted that their jobs "always" or "frequently" required them to think, 127, or 76.1 percent, indicated that their work "always' or "frequently" entailed variety. And, seventy-nine, or 48.7 percent, stated that their jobs

"always" or "frequently" provided them opportunities to be involved when decisions were made.

Of the 170 respondents, fifty-two, or 30.6 percent, noted that their jobs "always" or "frequently" allowed them to be creative, and ninety-two, or 54.1 percent, indicated that their employers encouraged them to develop additional skills. Over sixty-two, or 36.5 percent, felt that they had opportunities to develop new procedures. In support of these latter perceptions of the graduates, more than 43 percent noted that their employers provided them with opportunities to attend workshops, seminars, and lectures on employer's time and expense.

Although over ninety, 52.9 percent, of the respondents indicated that they were "always" or "frequently" given enough responsibilities in their jobs, and over 110, 64.7 percent, noted that their jobs "always" or "frequently" provided them with a sense of accomplishment, only fifty, 28.5 percent, felt that they were "always" or "frequently" paid salaries commensurate with their educational backgrounds and abilities. Further, while sixty-six, 40 percent, of the respondents indicated that they "seldom" or "never" were paid fair salaries which were commensurate with their educational background and abilities, forty-four, 26.8 percent, "always" or "frequently" regarded their present positions as lifetime careers. One hundred one, 62.2 percent, indicated that they would "seldom" or "never" choose a different line of work if they could start over.

DISCUSSION - The following discussion was drawn from the findings of the study. It is based on the replies which the graduates gave in responses to a thirty-three item questionnaire.

Discussion of Research Question 1

The demographic data on Illinois State University medical technology graduates indicate that they are made up of mostly, 85.9 percent, Caucasian females. Although their ages range from 19 to 50 years of age, over 90 percent of them are between twenty-three and thirty years old. Over 58 percent of the graduates were married; 38.8 percent were single/never married; a 2.9 percent were single/divorced or separated.

Discussion of Research Question 2

The findings of this study suggest no need for significant change, or modification, in the medical technology curriculum for the following reasons: (1) more than 57 percent of the graduates "strongly agreed" that the Medical Technology Program, in which they had studied, had adequately prepared them to enter their internships. And (2) more than 62 percent "agreed" that their curriculuar experiences had been equal to the preparation of other interns who were in their internship classes from other colleges and universities. However, the graduates gave some mixed reactions in their desires for some curricular changes. Whereas 57 percent of the respondents indicated a desire for more professional medical technology courses before entering their internships, 47 percent would not want these additional courses at the expense of spending additional time at the university before entering internships.

Discussion of Research Question 3

One hundred forty-eight of the 156, or 94 percent, working graduates of Illinois State University Medical Technology Program, who responded in this study, worked in hospitals. One third, 33 percent, worked in

hospitals with bed capacities of over 500. Thirty, or 20.3 percent, worked in hospitals with bed capacities ranging from 201 to 300, and 17.6 percent worked in hospitals with 401 to 500 beds. The findings that only 1.4 percent of the graduates worked in hospitals with bed capacities of less than 50, and 3.4 percent worked in hospitals with less than a 100 bed capacity indicate that most of the graduates worked in medium to large size hospitals. The data revealed that 81.8 percent of the respondents worked in hospitals with over 200 bed capacities.

Discussion of Question 4

The finding of 5.6 percent of the 162 respondents had spent between six and ten years in their present jobs, and only forty respondents had been graduated longer than six years; it has been calculated that approximately twenty-two of the forty graduates have remained in their present jobs for over six years. Also, 43.2 percent of the respondents who had been graduated for more than two years revealed that approximately 65 of the 151 respondents had been in their present jobs between two and five years. The evidence of the number of respondents remaining in their jobs for over six years, and the number of respondents remaining in their jobs for between two and five years, indicate that the graduates do remain in their jobs for a reasonable length of time.

Discussion of Research Question 5

The responses of the graduates to this question suggest that they generally felt that they had opportunities for professional growth

in their present jobs. For example, over 56 percent indicated that their employers encouraged the development of new skills, and over 73 percent indicated that their employers provided the mechanisms for them to develop new methodologies and procedures. The latter is supported by the fact that over 45 percent of the respondents noted that their employers had provided them with opportunities to attend workshops, seminars, and lectures on employer's time and expense.

Discussion of Research Question 6

About half of the respondents, seventy-nine of 162, felt that their jobs either always or frequently provided them with opportunities to be involved when decisions were made in their respective laboratories. This would indicate that they had some input into those decisions that were made on issues which were directly related to their work.

Discussion of Research Question 7

The finding that 91.8 percent of the respondents were employed explicitly shows that most of the graduates in this study were employed. Eighty percent of the respondents were employed full time, and 11.8 percent were employed part time. Whereas it was not determined if any of the part-time respondents desired full-time employment, it was found that of the 8.3 percent unemployed, none indicated "lay off" or "limited opportunities for employment" as a reason for their unemployment status. These findings suggest that those respondents in this study who wanted to work had jobs.

CONCLUSIONS - With 146 of the 170 graduates "agreeing" that their medical technology program adequately prepared them for their internships, and 154 "agreeing" that their preparations were equal to interns from other institutions, it is reasonable to conclude that in the opinions of the graduates the Medical Technology Program at Illinois State University is a sound program and that the graduates are equal to, or superior to, graduates from other medical technology programs of this type.

In addition, the fact that 164, 95.5 percent, of the 170 respondents were certified medical technologists serves to indicate that the medical technology curriculum at Illinois State University is adequate in providing the graduates with the appropriate preparations to pass the certification examination.

The tabulations of the graduates' responses concerning their employment status revealed that: 136, or 80 percent, were employed full time, and twenty, or 11.8 percent, were employed part time, for a total of 156, or 91.8 percent, employed. If 91.8 percent of the 156 respondents were employed, it appears reasonable to conclude that the graduates of Illinois State University Medical Technology Program are employable.

Of the fourteen, 8.2 percent of the 156 respondents who listed their employment status as being unemployed, none noted "lay off" or "limited opportunities for employment" as reasons for being unemployed. This is suggestive that those graduates were unemployed for reasons other than not being able to find jobs. Further: (1) it seems reasonable to conclude that jobs were available for those graduates, and (2) this data supports the need to continue the Medical Technology Program at Illinois State University.

Reference

1. Board of Higher Education, Education in the Health Field for the State of Illinois, Volume 1, June 1968.